

TECHNOLOGY SUMMARY

Full paper is published in the proceedings of:

**MITIGATING AIR EMISSIONS FROM
ANIMAL FEEDING OPERATIONS
CONFERENCE**

Iowa State University Extension
Iowa State University College of Agriculture
and Life Sciences

**Conference Proceedings
Sponsored by:**

NRI Air Quality Extension & Education
U.S. Pork Center of Excellence
Iowa Farm Bureau Federation
Iowa Egg Council
Iowa Pork Industry Center
Iowa Pork Producers Association

Microbial Additives to Reduce Ammonia Emission from Poultry Houses

Daniel Karunakaran

Species: Poultry

Use Area: Animal Housing

Technology Category: Biological Amendment and
Diet Modification

Air Mitigated Pollutants: Ammonia

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System Summary:

Use of Bacterial products (*Bacillus* based) such as Micro Treat P and Provalen has demonstrated to effectively reduce litter ammonia emissions in broiler, layer and turkey production systems. It has been known that gram negative bacteria in the litter and fecal matter break down the nitrogen and convert to ammonia as result of their growth and multiplication. It is also been known that certain bacteria have the property to help in reduce gram negative bacteria in the litter and droppings there by retaining nitrogen in the litter and fecal matter. Micro Treat P is a proprietary product designed and produced by Agtech Products, Inc. This is added to the poultry litter. Provalen is a *bacillus* based feed additive designed for layers.

Applicability and Mitigating Mechanism:

- Gram negative bacteria are highly prevalent in poultry litter and waste.
- These Gram negative bacteria convert uric acid in the poultry waste to make harmful ammonia.
- Application of Micro Treat P and Provalen lowers the gram negative counts in the litter and poultry waste.
- The reduction in Gram Negative bacterial population helps in nitrogen retention and reduced ammonia production.

Limitations:

- It is a long term ammonia reduction tool.
- The mode of action of microbial litter amendments are cumulative in nature and do not accomplish a quick ammonia reduction like chemicals.

Cost:

MicroTreat P comes foil packs and is concentrated for convenient use. The application rate is based on type of poultry and fecal material produced. Typically the treatment costs are as follows: Broilers \$0.005 per bird, Turkeys \$0.055 (40 pound tom) and \$0.028 (16 pound hen). The cost to treat layers feeds with Provalen is approximately \$2.00/ ton.